Graduate School of
BUSINESS &
PUBLIC POLICY

Financing Humanitarian Assistance and Disaster Response

The Case of the Tōhoku Earthquake and Operation Tomodachi

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Recent work in the area of HA/DR supported by ARP and focused on operations and finance

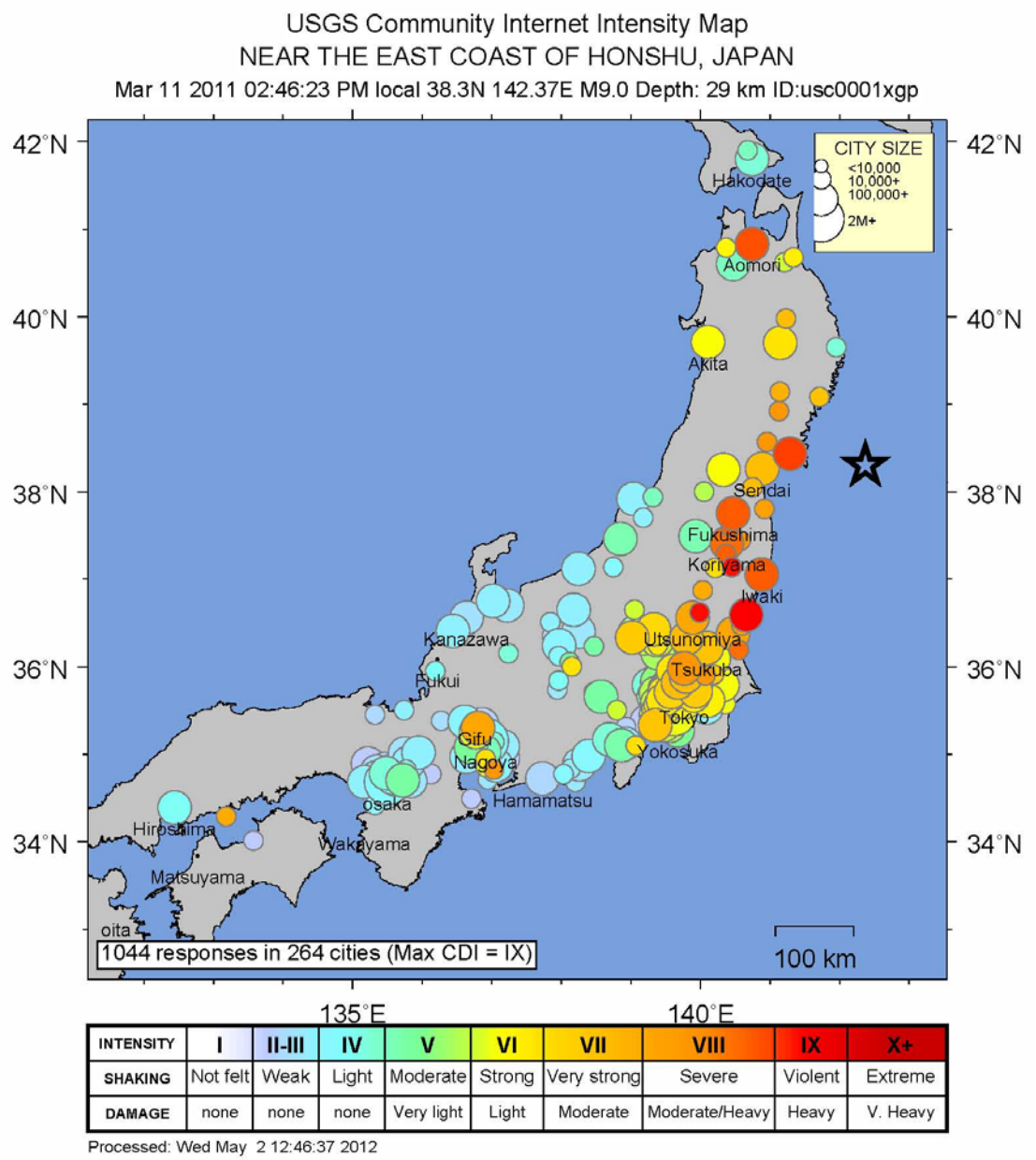
Operations

- Kaczur, Aurelio, and Joloya (2012), *An Analysis of United States Naval Participation in Operation Tomodachi: Humanitarian and Disaster Relief in the Tsunami-Stricken Japanese Mainland*
- Greenfield and Ingram (2011), *An analysis of U.S. Navy humanitarian assistance* and *disaster relief operations*, Naval Postgraduate Thesis and Acquisition Research Program Report.

Finance

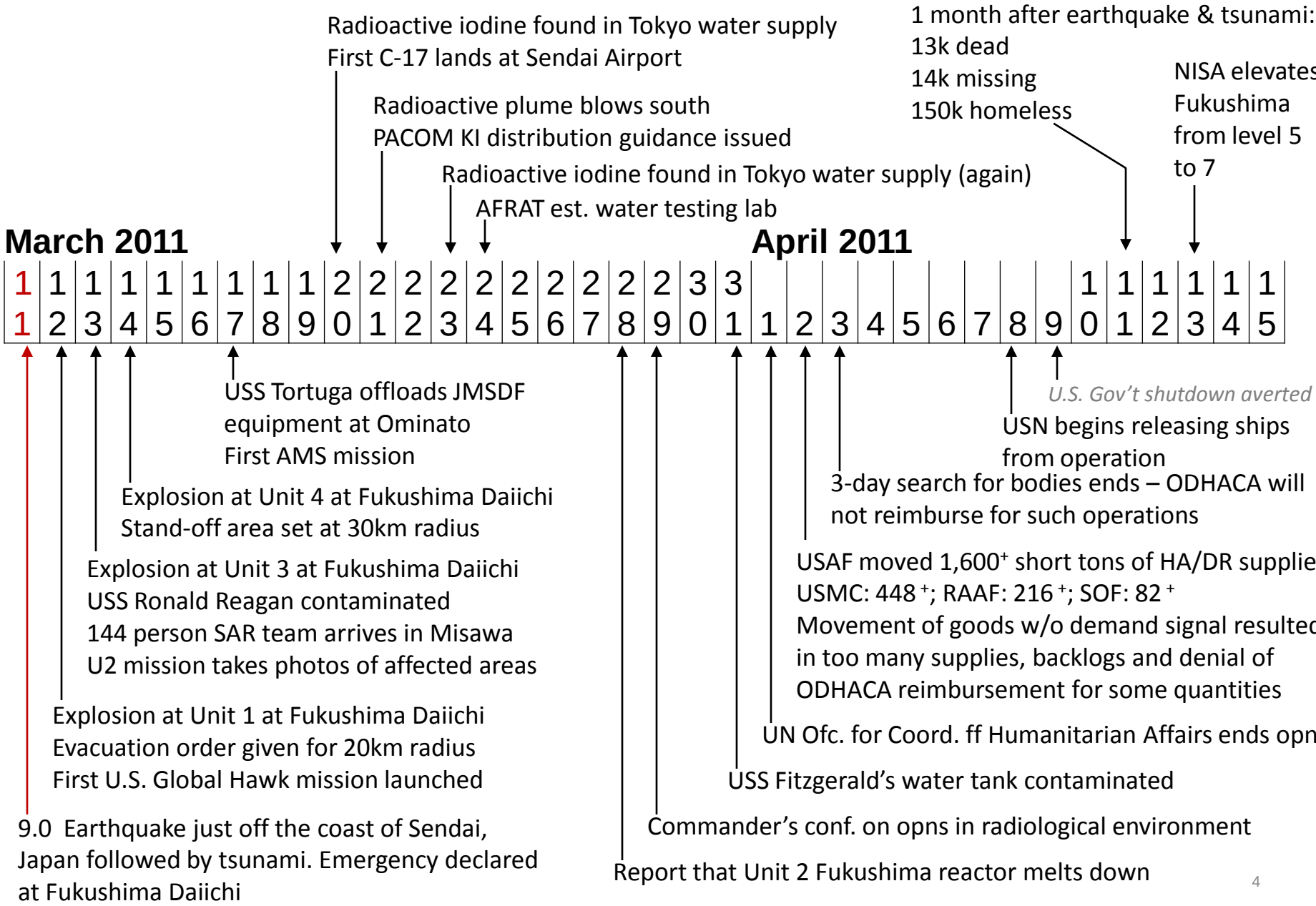
- Herbert, Prosser, and Wharton (2012), *A Cost Analysis of the Department of the Navy Humanitarian Assistance and Disaster Response to the 2011 Tohoku Earthquake and Tsunami,* Naval Postgraduate Thesis and Acquisition Research Program Report.
- Ures (2011), *Financing naval support for humanitarian assistance and disaster response: an analysis of cost drivers and cash flows*, Naval Postgraduate Thesis and Acquisition Research Program Report.

Areas impacted by the earthquake



*Source: U.S. Geological Survey

The first 35 days of operations*



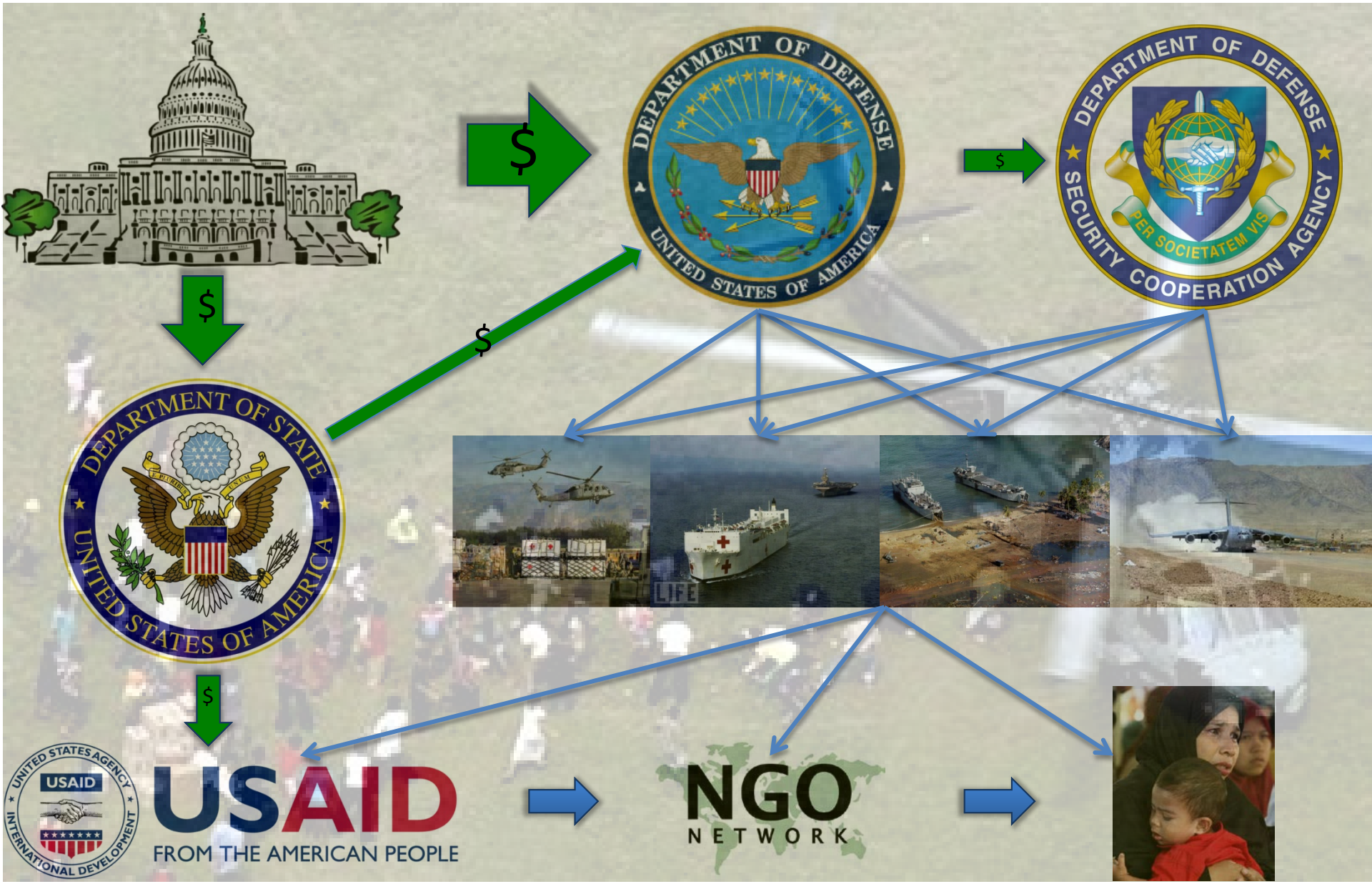
Source: Adapted from briefing developed by CDR Fred Dini, SC, USN, JSF Japan Comptroller, May 2011

*U.S. ships deployed for 30 days in support of Operation Tomodachi**

			MARCH																						APRIL														
Type	**Name**	**Platform**	**11**	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	**9**	10	11	12	13	14	15
USS	CHANCELLORSVILLE	CG																																					
USS	COWPENS	CG																																					
USS	SHILOH	CG																																					
USS	RONALD REAGAN	CVN																																					
USS	GEORGE WASHINGTON	CVN											N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N							
USS	PREBLE	DDG																																					
USS	MUSTIN	DDG																																					
USS	MCCAMBLE	DDG																																					
USS	JOHN MCCAIN	DDG																																					
USS	CURTIS WILBUR	DDG																																					
USS	FITZGERALD	DDG																																					
USS	ESSEX	LHD																																					
USS	GERMANTOWN	LSD																																					
USS	HARPERS PERRY	LSD																																					
USNS	TORTUGA	LSD																																					
USNS	BLUE RIDGE	LCC																																					
USNS	RICHARD E BYRD	T-AKE																																					
USNS	CARL BRASHEAR	T-AKE																																					
USNS	MATTHEW PERRY	T-AKE																																					
USNS	PECOS	T-AO																																					
USNS	RAPPAHANNOACK	T-AO																																					
USNS	BRIDGE	T-AOE																																					
USNS	SAFEGUARD	T-ARS																																					
MV	WESTPAC EXPRESS	HSV																																					

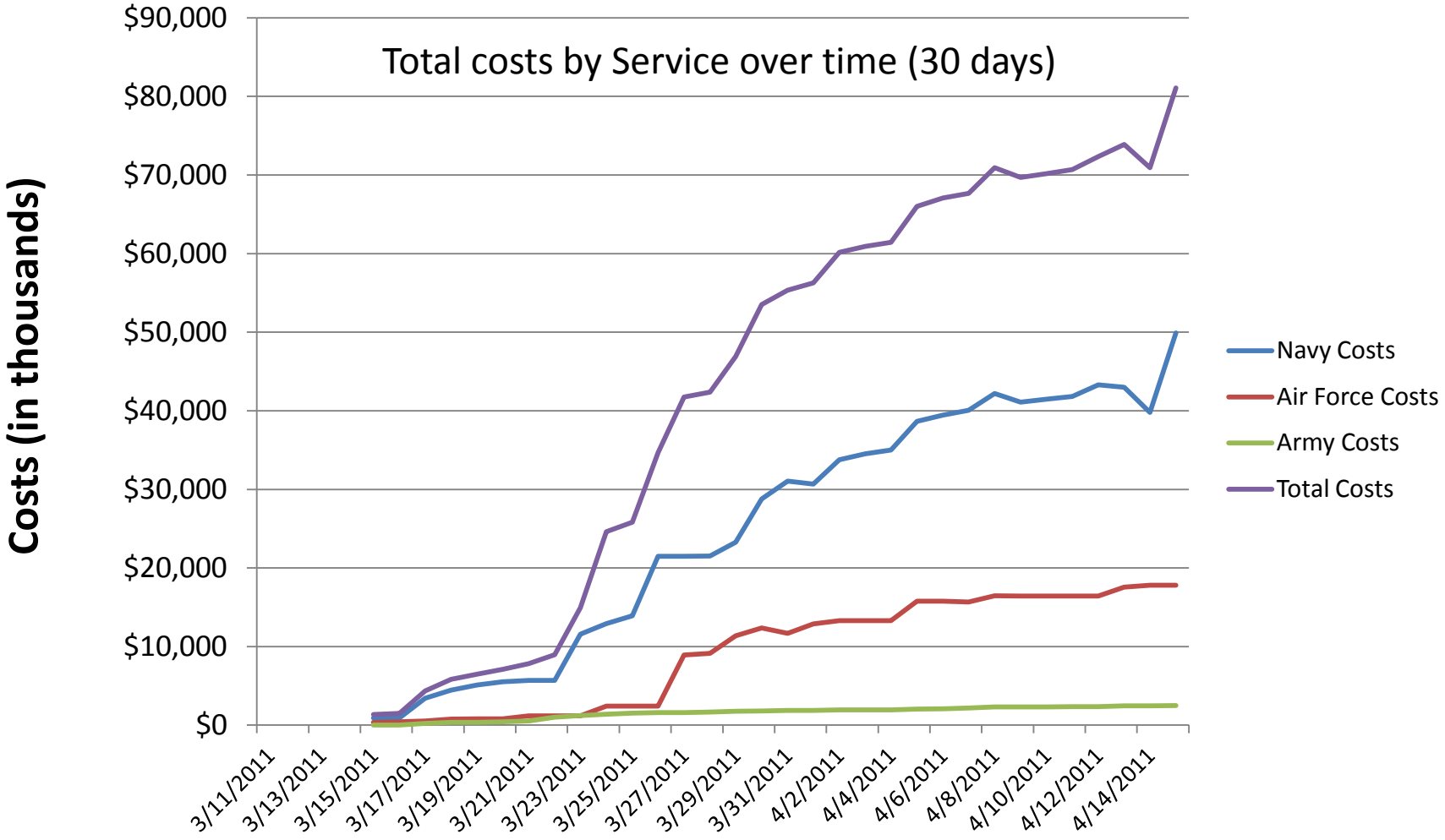
**Source: Kaczur, Aurelio, Joloya, 2012*

ODHACA funding process



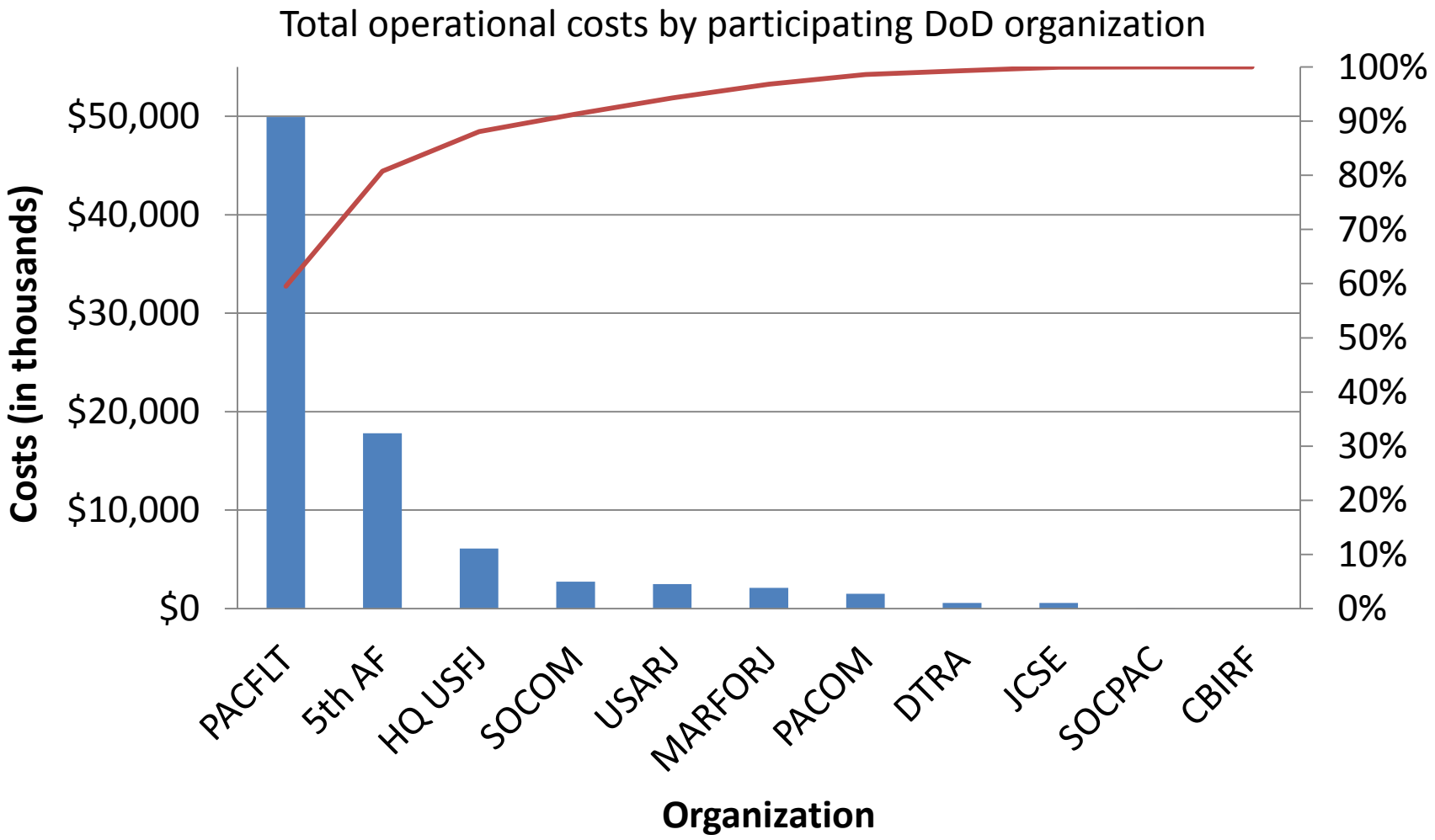
*Source: Ures, 2011

The Navy was the key responder for the US DoD and therefore drove most costs



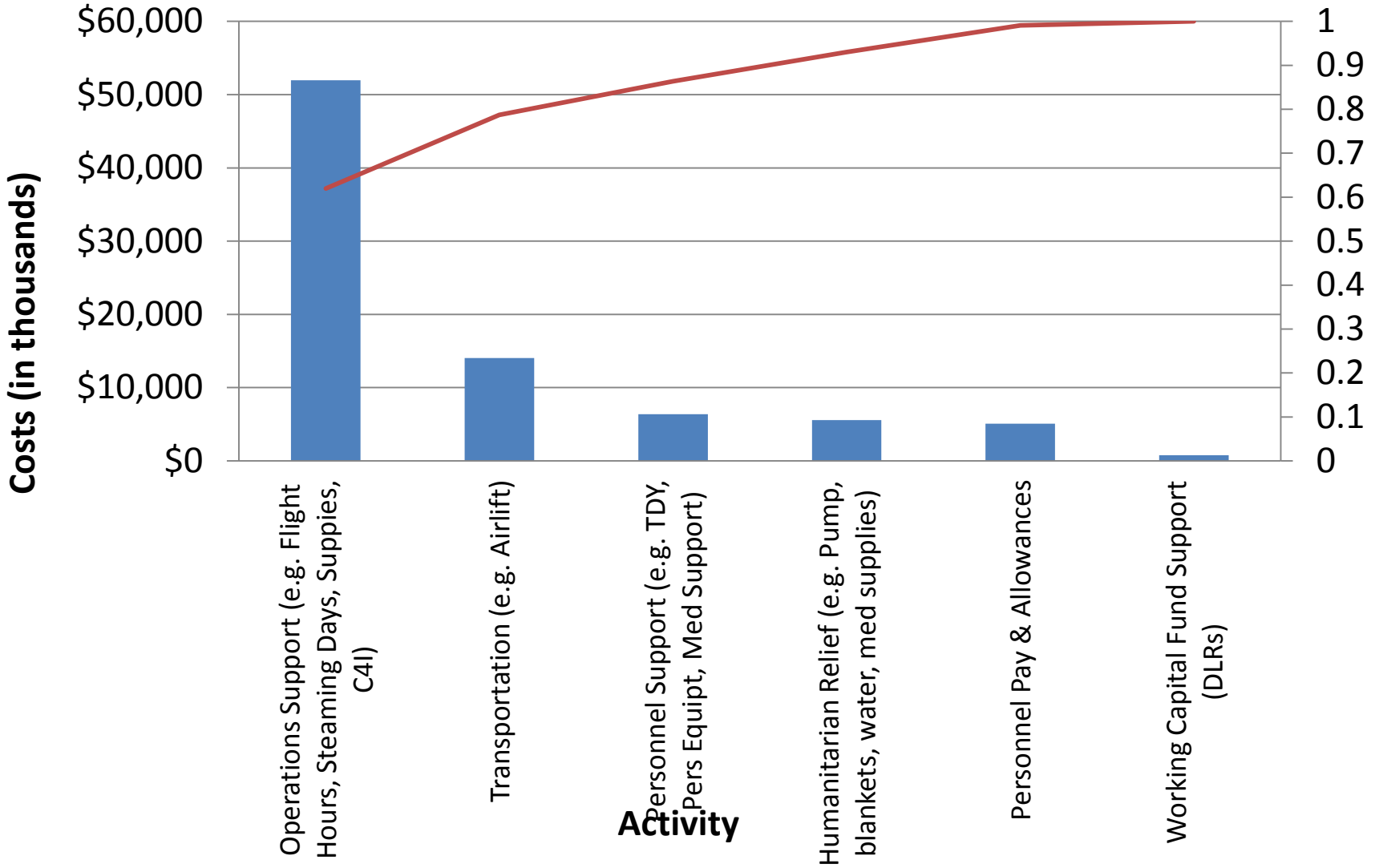
**Data source: Department of the Navy, Office of the Assistant Secretary of the Navy, Financial Management and Comptroller (OASN (FMC))*
Data range: 11 March 2011 – 15 April 2011

The Pacific Fleet had a significant response and therefore drove most of the costs



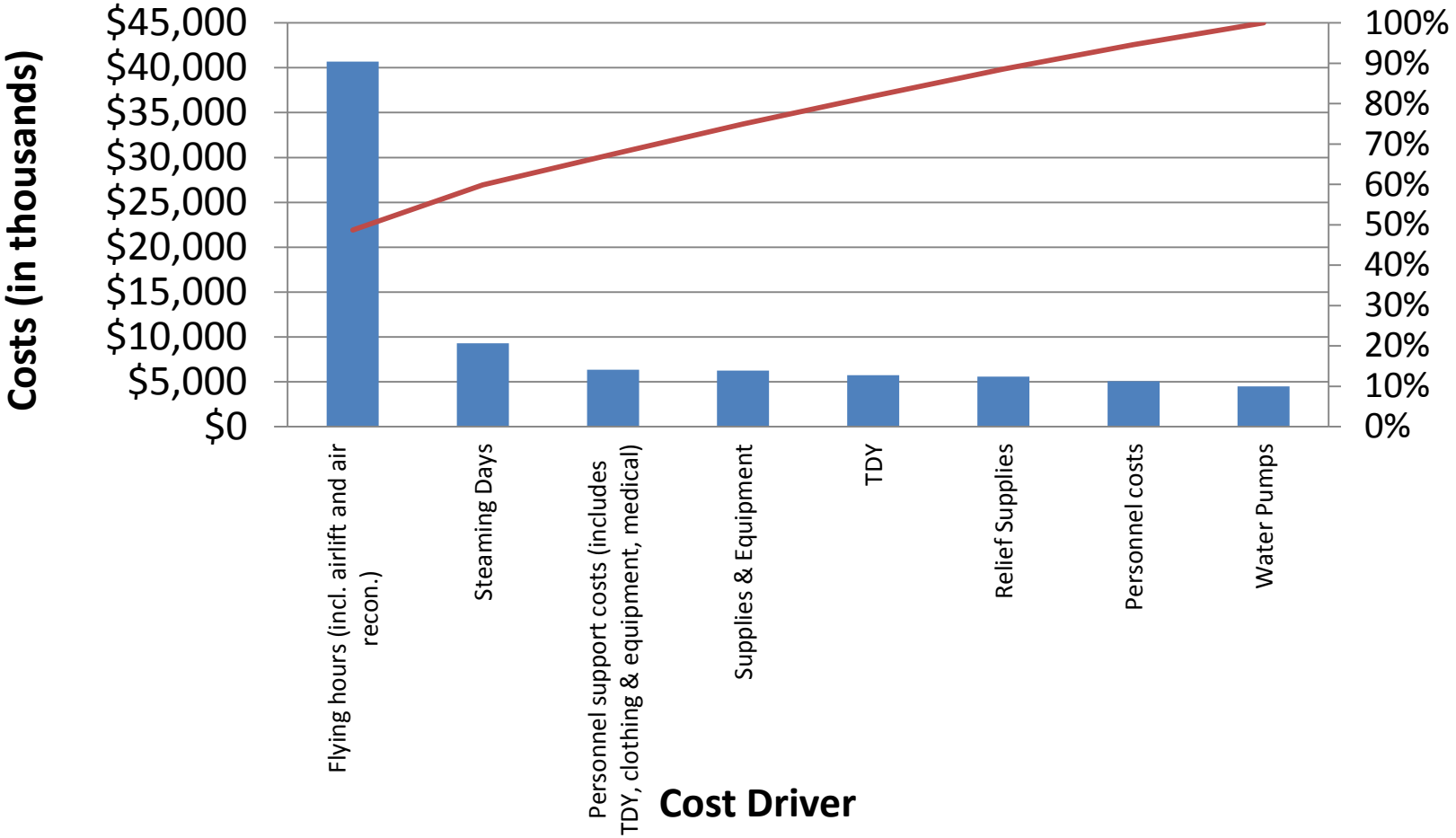
*Data source: Department of the Navy, Office of the Assistant Secretary of the Navy, Financial Management and Comptroller (OASN (FMC))
Data range: 11 March 2011 – 15 April 2011

"Operations support" was the primary cost driver and accounted for more than 60% of total costs



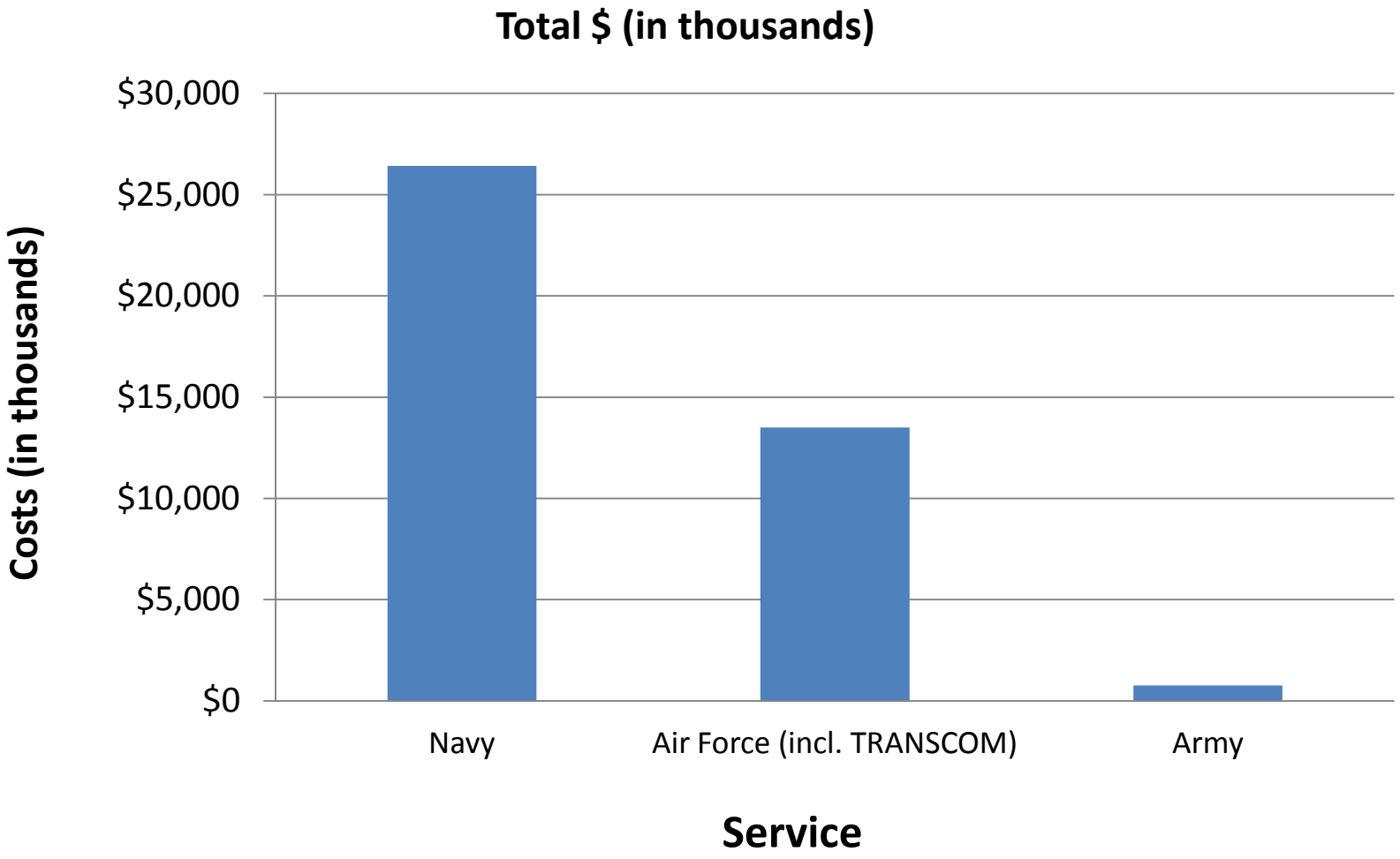
**Data source: Department of the Navy, Office of the Assistant Secretary of the Navy, Financial Management and Comptroller (OASN (FMC))*
Data range: 11 March 2011 – 15 April 2011

A breakdown of "operations support" activities shows that flying hours and airlift drive more than 40% of costs in that category



*Data source: Department of the Navy, Office of the Assistant Secretary of the Navy, Financial Management and Comptroller (OASN (FMC))
Data range: 11 March 2011 – 15 April 2011

The US Navy provided the greatest number of aircraft in the first 30 days and drove most of the flying hour costs



**Data source: Department of the Navy, Office of the Assistant Secretary of the Navy, Financial Management and Comptroller (OASN (FMC))*
Data range: 11 March 2011 – 15 April 2011

Pacific Fleet was the main cost driver for Navy flying hour costs

Aircraft Type	USMC	USN	Total	% of Total
Rotary Wing	$1,621,521	$3,166,498	$4,788,019	27%
Fixed Wing	$2,344,167	$10,356,238	$12,700,405	73%

	COMPONENT		
AIRCRAFT TYPE	USMC	USN	TOTAL COSTS
FA-18C		$1,955,153	$1,955,153
SH-60F		$1,925,685	$1,925,685
KC-130J	$1,733,258		$1,733,258
FA-18F		$1,708,762	$1,708,762
C-2A		$1,657,015	$1,657,015
FA-18E		$1,654,170	$1,654,170
CH-46E	$1,480,954		$1,480,954
P-3C		$1,478,054	$1,478,054
E-2C		$1,324,857	$1,324,857
HH-60H		$745,684	$745,684
EA-6B		$447,896	$447,896
MH-60S		$380,010	$380,010
UC-35D	$327,027		$327,027
UC-12F	$224,258		$224,258
CH-53E	$140,568		$140,568
C-12		$130,332	$130,332
SH-60B		$115,120	$115,120
UC-12W	$59,625		$59,625
Total	**$3,965,688**	**$13,522,736**	**$17,488,425**

**Data source: Pacific Fleet (PACFLT) Comptroller*
Data range: 11 March 2011 – 04 April 2011

Navy Pacific Fleet flying hour costs excluding F/A-18s of all types

Aircraft Type	USMC	USN	Total	% of Total
Rotary Wing	$1,621,521	$3,166,498	$4,788,019	41%
Fixed Wing	$2,344,167	$4,590,257	$6,934,424	59%

	COMPONENT		
AIRCRAFT TYPE	USMC	USN	TOTAL COSTS
SH-60F		$1,925,685	$1,925,685
KC-130J	$1,733,258		$1,733,258
C-2A		$1,657,015	$1,657,015
CH-46E	$1,480,954		$1,480,954
P-3C		$1,478,054	$1,478,054
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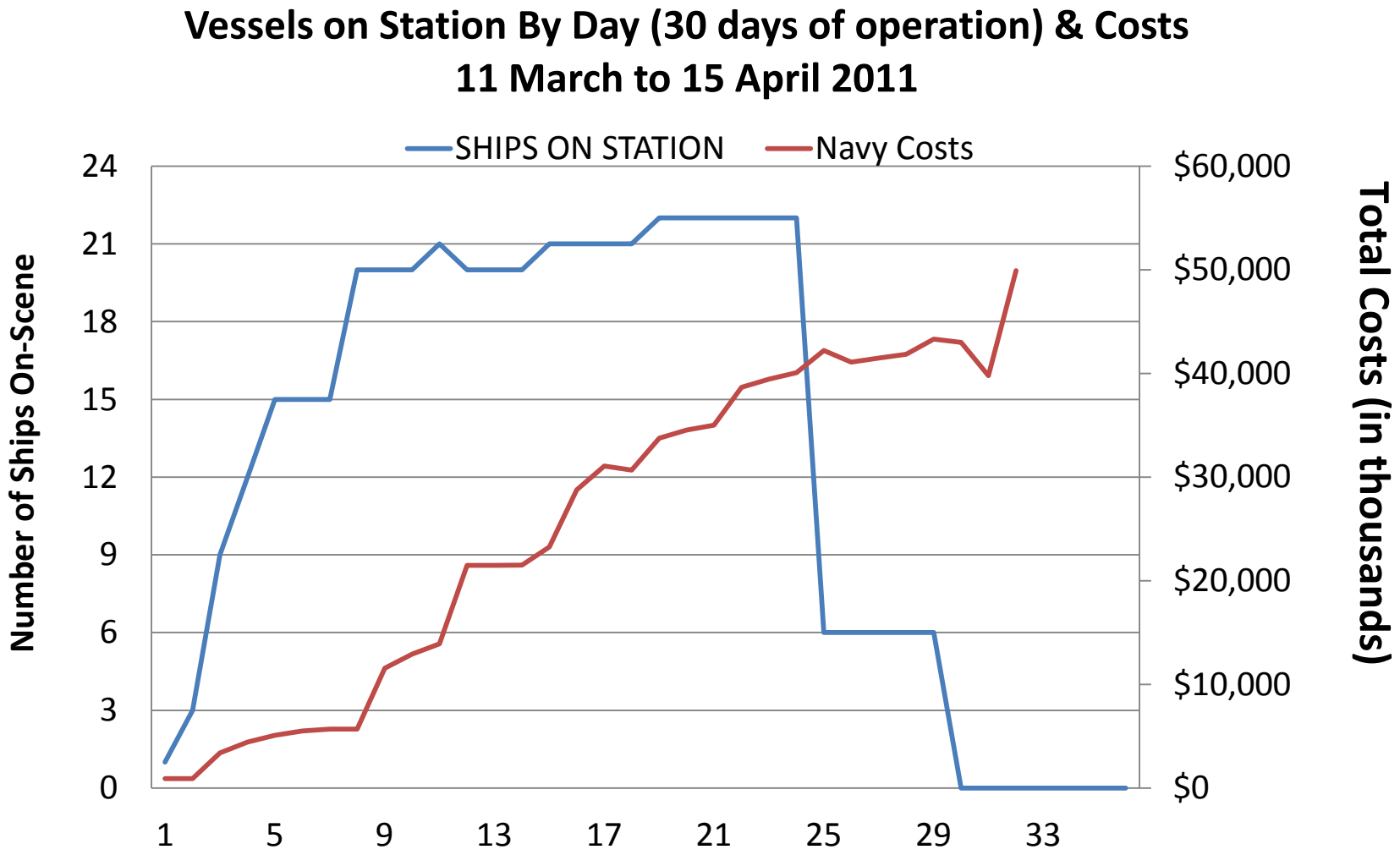
MH-60S		$380,010	$380,010
UC-35D	$327,027		$327,027
UC-12F	$224,258		$224,258
CH-53E	$140,568		$140,568
C-12		$130,332	$130,332
SH-60B		$115,120	$115,120
UC-12W	$59,625		$59,625
Total	$3,965,688	$7,756,755	$11,722,444

A total of 23 Navy ships participated in Operation Tomodachi



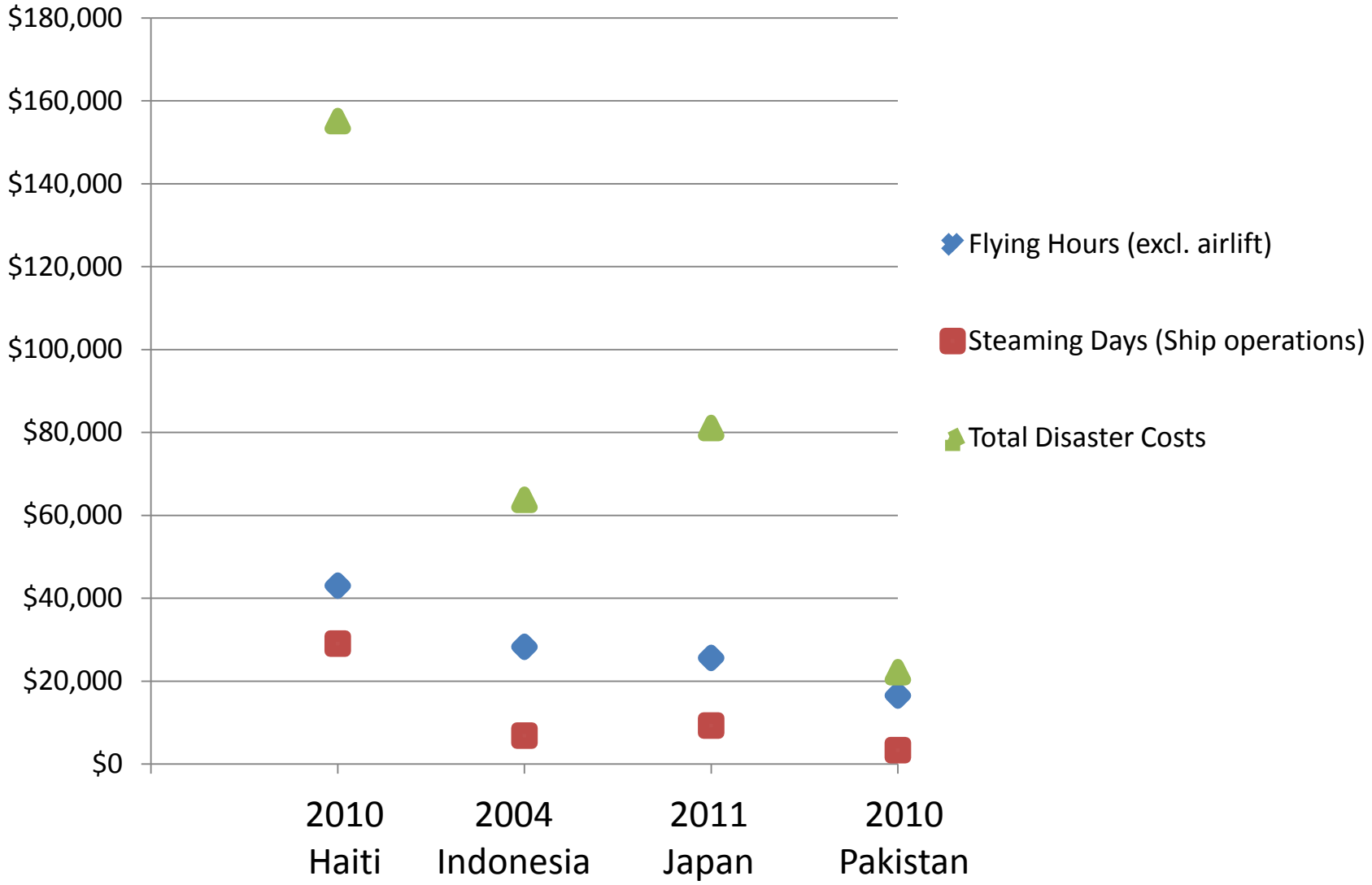
**Source: Kaczur, Aurelio, Joloya, 2012 & Department of the Navy, Office of the Assistant Secretary of the Navy, Financial Management and Comptroller (OASN (FMC))*

Flying Hour and Steaming Costs Compared to Total Costs

Event	Total Flying & Steaming $	Total Disaster Costs	Flying Hrs & Steaming as % of Total	Flying Hrs as % of Total
2010 Haiti Earthquake	$72,131	$155,135	46%	28%
2004 Indonesian Tsunami	$35,178	$63,775	55%	44%
2011 Japan Earthquake & Tsunami	$34,929	$81,091	43%	32%
2010 Pakistan Floods	$19,909	$22,181	90%	75%

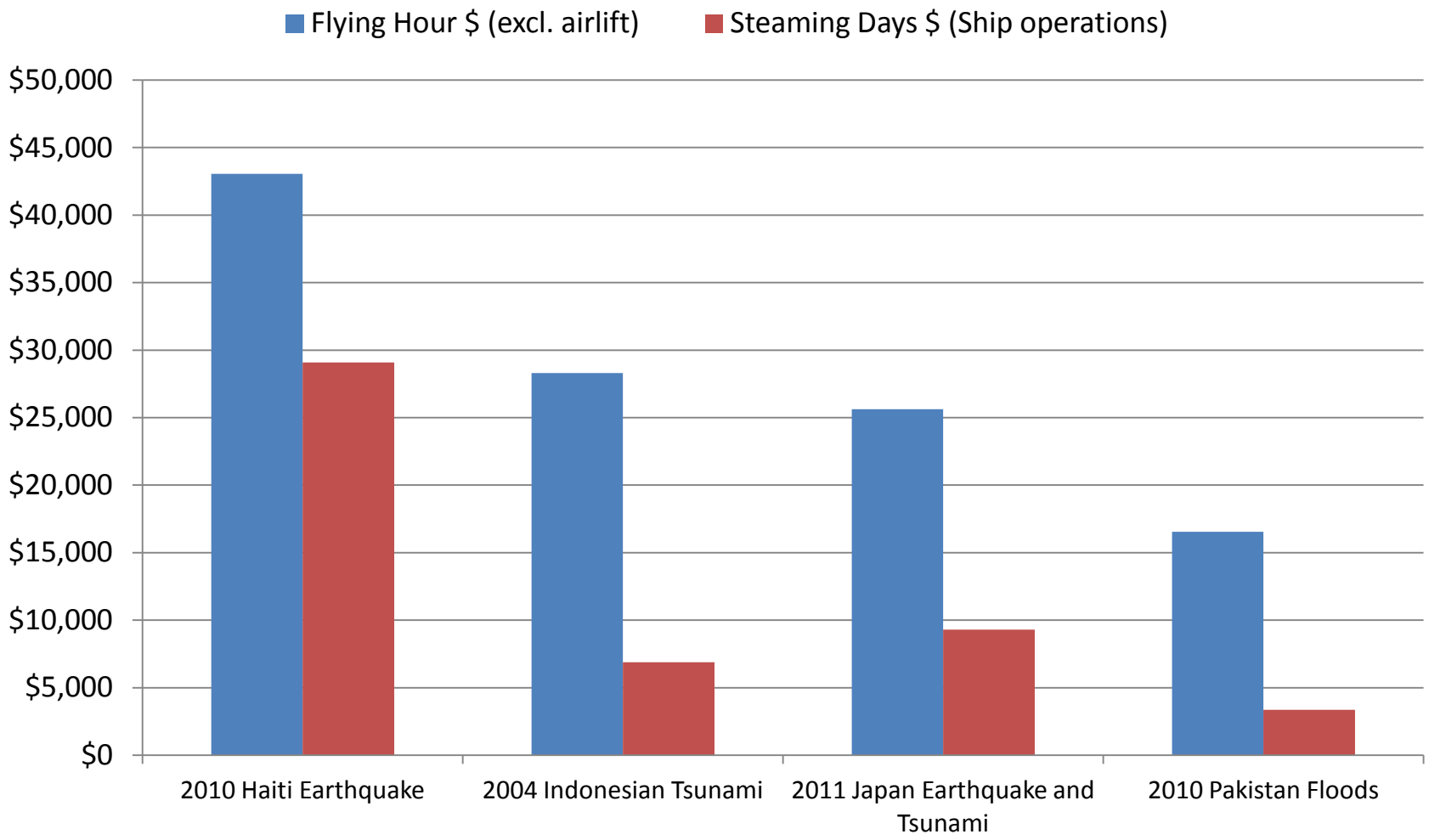
**Data source: Department of the Navy, Office of the Assistant Secretary of the Navy, Financial Management and Comptroller (OASN (FMC))*
Data range: 11 March 2011 – 15 April 2011

Flying Hour and Steaming Costs Compared to Total Costs



**Data source: Department of the Navy, Office of the Assistant Secretary of the Navy, Financial Management and Comptroller (OASN (FMC))*
Data range: 11 March 2011 – 15 April 2011

Flying hours and steaming costs for Haiti, 2004 Indonesian Tsunami, 2011 Japan Earthquake and 2010 Pakistan floods



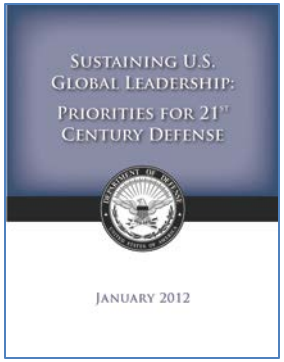
Conclusions

- There have been 4 studies on operations and costs of disasters
  - These studies have changed the way we think about the cost drivers
    - Not just personnel costs -- flying time tends to be the largest driver, the number of ships you send as well as ship type has significant cost consequences

- Flying hours and steaming time are the biggest cost drivers

- Navy is a significant DoD participant in HA/DR
  - More of the world population is moving to coastal (littoral) areas
  - Navy can access the coastal (littoral) areas with specialized equipment utilizing specialized skills
  - Not just about moving materiel – other capabilities –especially nuclear expertise – that are important depending upon the disaster

- If HA/DR operations are a primary mission of the U.S. Armed Forces as defined by key part of our national security strategy as outlined in *Priorities for 21st Century Defense* (p.6), then such operations should be considered during the planning and development of programs that support operations (such as shipbuilding, calculation of aircraft life, etc.)



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